UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/477,166	01/04/2000	ALI NAJIB SALEH	M-7166-IP-US	8782

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EXAMINER
LEE, TIMOTHY L

ART UNIT	PAPER NUMBER
2662	11

DATE MAILED: 02/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>29 December 2003</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-36</u> is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-36</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2.   Claims 1-5, 13, 15, 16, 17, 20, 24, 25, 27, 28, 29 and 36 are rejected under 35

U.S.C. 102(e) as being anticipated by Smith (US 6,188,686). Smith discloses a system for

switching in an ATM network that includes a plurality of inputs and a plurality of outputs

(configuring said switch matrix to couple a plurality of inputs to a plurality of outputs). See

Abstract. In one embodiment, the connections means may comprise time-division multiplexing

means for each data delivery group, operable repetitively to perform a preselected sequence of

switching cycles that includes at least one first switching cycle. The switching cycles are

preferably of the same duration (a time period of said minimal concurrency defining a switching

period). This arrangement is easy to control since the same sequence of switching cycles is

repeated. The sequence will normally include one type of switching cycle for each data unit of

the group, e.g. first, second, third, and fourth switching cycles for a four-data-unit group (each

one of said plurality of information streams comprises a plurality of portions in a sequence and is

received at a corresponding one of said plurality of inputs). In time-division multiplexing, each

of the portions of data from the group will have its own time slot for being transmitted—the

reason for having time slots is so that collisions of data can be avoided (a one of said plurality of

portions is in a specific position of said sequence; a time period during which said one of said

plurality of portions transits said switching matrix is at least minimally concurrent with said time

period for each other one of said plurality of information streams). It is inherent that the

switching apparatus must reconfigure itself during the different time periods so that information

from the different inputs can reach the different outputs (reconfiguring said switch matrix during

said switching period). See col. 3, line 50-col. 4, line 26; col. 25, lines 1-64; col. 26, lines 21-59,

and col. 28, lines 24-49.

3.   Regarding claim 20 more specifically, Smith discloses that the time-division multiplexing

means can be implemented through a overall switching controller, used to control all components

of the apparatus (control circuitry, having a control output coupled to said control

input...configure said switching matrix to output said information stream at a one of said

plurality of matrix outputs).

4.   Regarding claim 36 more specifically, data and metadata can be considered one in the

same—it will still be "data" and be formatted similarly.

5.   Regarding claims 2, 15, and 24, Smith discloses a system that includes many outputs and

many inputs. See Fig. 13. The purpose of the switching system is to allow an input to be

directed toward any of the outputs (reconfiguring couples said first input to a second output).

6.   Regarding claims 3 and 16, Smith discloses that an input connection can be switched into

a data-passing state, in which it serves to pass data from its data unit to said associated input port

(non-blocking switch matrix). See col. 2, lines 47-57.

7.   Regarding claim 4, Smith discloses that the switching means are preferably cross-connect

switching means which have the advantage of being memory-less, but could alternatively be

memory based switching types such as CLOS types (switching matrix is a CLOS switching matrix). See col. 11, lines 1-4.

8.   Regarding claim 5, it is inherent that a time-division system is used so that collisions will be avoided between two inputs that would like to transmit to the same output at the same time. The system was designed to avoid generating collision errors.

9.   Regarding claim 17, Smith discloses that the switching cycles can be scheduled to allow one stream to have a higher output to allow for changing traffic conditions. See col. 28, lines 24-39.

10.   Regarding claim 25, if one of the samples contains no data, then inherently it becomes expendable because no data would be lost if it wasn't sent.

11.   Regarding claim 27, as mentioned previously, the system includes a plurality of inputs and a plurality of outputs, all with different streams of data. The purpose of the switching matrix and the time-division multiplexing is to allow for switching of all of these different lines and to allow for the data to be transmitted with no collisions or errors.

12.   Regarding claims 28 and 29, it is well-known in the art that the information supplied to the control processor could be hardwired into the hardware or could be run off software. As mentioned previously, Smith discloses that the scheduler can adapt the time-division multiplexing depending the current traffic conditions.

Claim Rejections - 35 USC § 103

13.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14.   Claims 6, 10-12, 18-19, 21-23, 30-33, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith in view of Toy (US 5,410,600) and in light of the rejections of the independent claims from above.

15.   Regarding claims 6, 17, 21, 23, and 30, Smith does not expressly disclose an input resequencing circuit the circuit moves one of said plurality of sub-portions from an original position in a sequence of said each one of said plurality of portions to another position in said sequence. Toy discloses the re-arranging and the resequencing of packets before and after they have been switched. Before being switched, the bits are scrambled (move a one of said plurality of sub-portions of each one of said plurality of portions from an original position in sequence to another position in said sequence), and on reception, the bits are descrambled (a first and second output resequencing circuit coupled to said plurality of matrix outputs and configurd to move sub-portions from another position to the original position). See at least col. 2, lines 41-61. It would have been obvious to a person or ordinary skill in the art at the time of the invention to add the rearranging and resequencing capabilities taught by Toy to the switching network of Smith. One of ordinary skill in the art would have been motivated to do this because re-arranging the data can allow for more secure data transmission as it acts as some basic from of encryption. See also col. 10, lines 47-62 of Toy for additional motivation as to why resequencing can be advantageous.

16.   Regarding claims 10 and 18, Toy does not expressly disclose re-arranging the portions such that a number of portions are set in contiguous positions, but it is obvious that during the

scrambling of bits that they could be scrambled in such a manner that the bits are in contiguous

positions. One of ordinary skill in the art would have been motivated to do this because the data

could be more efficiently compressed by sending it all in a compacted period of time.

17.   Regarding claims 11, 19, 22, and 31 (referring to second output requencing circuit), Toy

discloses in re-arranging that the bits can be put back into their original positions. It would have

been obvious to allow for the re-arrangement of bits back to their original positions after

resequencing in the system disclosed by Smith. One would have been motivated to do this

because eventually the bits will have to be put back in their original order for the data to be read

properly.

18.   Regarding claim 12, Smith does not expressly disclose the reading, processing, and

writing of protocol information during the transmission of data, but it is obvious that these steps

need to be done if a packet is to travel from one protocol to another.

19.   Regarding claim 32, Smith discloses that an input connection can be switched into a data-

passing state, in which it serves to pass data from its data unit to said associated input port (non-

blocking switch matrix). See col. 2, lines 47-57.

20.   Regarding claim 33, if one of the samples contains no data, then inherently it becomes

expendable because no data would be lost if it wasn't sent.

21.   Regarding claim 35, as mentioned previously, the system includes a plurality of inputs

and a plurality of outputs, all with different streams of data. The purpose of the switching matrix

and the time-division multiplexing is to allow for switching of all of these different lines and to

allow for the data to be transmitted with no collisions or errors.

22.   Claims 7, 8, 9, 14, 26, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Smith in view of Toy in furthur view of Kartolopoulos (US 6,266,333) and in light of the

rejections above. Smith nor Toy does not expressly discloses the use of a SONET frame nor a

portion of data containing network overhead. Kartalopoulos discloses the use of SONET frames,

which happen to contain network overhead in them. See col. 1, lines 41-52. It would have been

obvious to a person of ordinary skill in the art at the time of the invention to use SONET frames

as the information stream. One of ordinary skill in the art would have been motivated to do this

because SONET frames are a common standard used in transmitting information over optical

lines.

23.   Regarding claim 9, SONET requires a continuous flow of bits to remain synchronized, so

it is obvious that the portions will be loaded with a value to keep the system synchronized. One

would have been motivated to do this because problems can be created with the timing of

packets in a synchronous system if there is no synchronization. See col. 2, lines 49-63.

24.   Regarding claim 14, Kartalopoulos does not expressly disclose the timing of when the

leading edge of a portion should be output before a trailing edge of one portion should be

received by an input, but it is obvious that the time period of minimal concurrency is such that a

leading edge of one portion has been output before a trailing edge is received. One of ordinary

skill in the art would have been motivated to do this because this is just one way of setting the

timing parameters of the system.

Response to Arguments

25.   Applicant's arguments filed December 29, 2003 have been fully considered but they are
not persuasive.

26.   In response to Applicant's argument that Smith does not teach the elements of
"configuring said switch matrix to couple a first input to a first output" and "reconfiguring said
switch matrix during a first time period said first time period corresponding to said one position
in said sequence," the Examiner respectfully disagrees. Smith discloses in col. 5, line 66-col. 6,
line 5, that configuration is changed at the end of each switching cycle, where each switching
cycle is preferably of the same duration required to transfer a data packet through the switching
fabric. Smith also discloses in col. 15, lines 31-37 that the switching controller 20 supplies
control information to the switching unit 8 to set its configurations appropriately to provide the
required connection from each source data unit to its destination data unit, where this connection
exists for the duration of the switching cycle. In other words, Smith discloses that configuring
from a first output to a second output. Also, the system sets news configuration (i.e.,
reconfigures) at the end of a switching cycle, which is in the duration of a time period. Applicant
also argues that the reconfiguration described in Smith must occur in between switching cycles.
As mentioned, Smith discloses that the switching occurs at the end of the switching cycle, which
is still part of the switching cycle. Thus, Smith teaches these elements, and the Examiner does
not believe that the avoidance of collision mechanism described in the previous action conflicts
with the switching apparatus having to reconfigure itself on new connections.

27.   In response to Applicant's argument that Smith does not disclose a switch matrix that is
rearrangeably non-blocking, the Examiner respectfully disagrees. The Examiner also believes
that the cited portion in the rejection is sufficient to show this element. Applicant argues that
Smith mentions a data-blocking state, so therefore, the switch cannot be non-blocking.
However, the Examiner reads "rearrangeably non-blocking switch matrix" to mean that the
switch has the capability of being non-blocking over certain paths after it has been rearranged.
The cited portion of Smith discloses this where it says that there is a "data-passing state." Read
in context with the rest of the specification, the data passing state can be understood to be
reconfigured and rearranged so that the non-blocking states can exist. Therefore, reading the
claim in the broadest sense, the Examiner believes that the rejection is proper.

28.   In response to applicant's argument that there is no suggestion to combine the Smith and
Toy references, the examiner recognizes that obviousness can only be established by combining
or modifying the teachings of the prior art to produce the claimed invention where there is some
teaching, suggestion, or motivation to do so found either in the references themselves or in the
knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071,
5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir.
1992). In this case, the Examiner stands by the motivation given in the rejection, that re-
arranging the data can allow for more secure data transmission as it acts as a basic from of
encryption.

29.   In response to applicant's argument that there is no suggestion to combine the Smith,
Toy, and Kartalopoulos references, the examiner recognizes that obviousness can only be
established by combining or modifying the teachings of the prior art to produce the claimed

invention where there is some teaching, suggestion, or motivation to do so found either in the

references themselves or in the knowledge generally available to one of ordinary skill in the art.

See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347,

21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the Examiner sticks by the original motivation

used, that SONET frames are a common standard used in transmitting information over optical

lines, so the system would be more widely useful if it were to employ a popular standard.

Conclusion

30. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

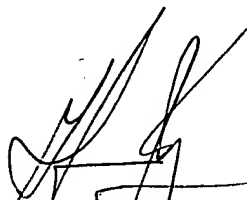policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Timothy Lee whose telephone number is (703)305-7349. The

examiner can normally be reached on M-F, 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Hassan Kizou can be reached on (703)305-4744. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TLL
Timothy Lee
February 5, 2004

HASSAN KIZOU
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